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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|----------------------|------------------|
| 10/736,854 | 12/16/2003 | Jeremy M. Ford | 16356.826 (DC-05328) | 9080 |

27683 7590 03/13/2008
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| EXAMINER |
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CLEARY, THOMAS J

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| ART UNIT | PAPER NUMBER |
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2111

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| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

03/13/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/736,854 | Applicant(s) FORD ET AL. | |
| | Examiner THOMAS J. CLEARY | Art Unit 2111 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-11 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5-11, and 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,148,353 to Cho ("Cho"), US Patent Application Publication Number 2004/0212822 to Schinner ("Schinner"), "About SP-DIF or S/PDIF" by DJ Greaves ("Greaves"), and with evidence of inherency provided by Computer Organization and Design, Second Edition, by John L. Hennessey et al. ("Hennessey").

3. In reference to Claim 1, Cho discloses an information handling system including: an audio coder and decoder including a unidirectional digital audio output (See Figure 3 Number 40 and Column 3 Lines 37-40); a first docking connector in a portable portion (See Figure 3 Number 51); a second multi-pin docking connector in a docking station (See Figure 3 Number 52); and a digital audio receiver to convert digital audio to analog audio and including a unidirectional digital audio input (See Column 3 Lines 29-31 and 34-40), wherein the digital audio receiver is located at the docking station and coupled

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to the docking connector via the unidirectional digital audio input (See Figure 3 Number 80). The computer of Cho will inherently include a processor; memory coupled to the processor; and glue logic coupled to the processor for facilitating connection of the processor to other devices, as these components are necessary for a computer to operate, as evidenced by Hennessy (See Pages 13-18). Cho is silent as to the type of unidirectional digital audio output used and the type of connector used, and does not disclose that the unidirectional digital audio output is a Sony-Philips Digital Interface (S/PDIF); that the docking connector is a multipin docking connector; wherein only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder, and wherein the only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder via the unidirectional S/PDIF digital audio output; and wherein only one audio pin of the second multi-pin docking connector is coupled to the only one audio pin of the first multi-pin docking connector; and wherein the digital audio receiver is coupled to the only one audio pin of the second multi-pin docking connector via a unidirectional S/PDIF digital audio output. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the unidirectional digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 1, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

4. In reference to Claim 5, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 1 above. Cho further discloses that the digital audio receiver includes an analog output (See Column 3 Lines 40-42).

5. In reference to Claim 6, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 5 above. Cho further discloses a first power amplifier coupled to the analog output (See Figure 3 Number 70 and Column 3 Lines 40-42).

6. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, Greaves, and Hennessy as applied to Claim 6 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

7. In reference to Claims 7 and 8, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 6 above. Cho, Schinner, Greaves, and Hennessy do not disclose a second power amplifier coupled to the second output, as in Claim 7, and a subwoofer coupled to the second power amplifier, as in Claim 8. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, Greaves, and Hennessy with the docking station subwoofer of Markow, resulting in the invention of Claims 7 and 8, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

8. In reference to Claims 9 and 10, Cho, Schinner, Greaves, Hennessy, and Markow disclose the limitations as applied to Claim 8 above. Markow further discloses

that the docking station has a substantially closed volume having an aperture, as in Claim 9, and that the subwoofer is situated in the aperture to project sound therethrough, as in Claim 10 (See Figure 1B Numbers 100 and 107).

9. Claims 11, 15-17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, and Greaves.

10. In reference to Claim 11, Cho discloses a method of operating an information handling system including a portable portion (See Figure 3 'Host') and a docking station (See Figure 3 'Docking Station'), the method comprising: generating, by the portable portion, a digital audio signal (See Figure 3 Number 40 and Column 3 Lines 37-40); sending the digital audio signal across a docking interface between the portable portion and a docking station (See Figure 3 Number 50), wherein the docking interface comprises a first docking connector (See Figure 3 Number 51) coupled to an audio coder and decoder (See Figure 3 Number 40 and Column 3 Lines 37-40), and the first docking connector is coupled to a second docking connector (See Figure 3 Number 52), and wherein the second docking connector is coupled to a digital audio receiver (See Figure 3 Number 80); converting the digital audio signal to an analog audio signal (See Column 3 Lines 29-31 and 34-42); and amplifying the analog audio signal (See Figure 3 Number 70 and Column 3 Lines 40-42). Cho is silent as to the type of digital audio signal used and the type of connector used, and does not disclose that the digital audio signal conforms to a Sony-Philips Digital Interface (S/PDIF) standard; that the docking

connector is a multi-pin docking connector, that the first multi-pin docking connector is connected to the audio coder and decoder using only one audio pin of the first multi-pin docking connector, wherein the second multi-pin docking connector is coupled to the digital audio receiver using the only one audio pin of the second multi-pin docking connector. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio signal format would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 11, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a

sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

11. In reference to Claim 15, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 11 above. Cho further discloses that converting the digital audio signal to an analog audio signal includes performing a digital to analog conversion on the digital audio signal after it passes from the first connector to the second connector of the docking interface, thus converting the digital audio signal to an analog audio signal (See Column 3 Lines 40-42).

12. In reference to Claim 16, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 15 above. Cho further discloses that amplifying the analog audio signal includes amplifying the analog audio signal by a first audio amplifier thus providing a first amplified audio signal (See Figure 3 Number 70 and Column 3 Lines 40-42).

13. In reference to Claim 17, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 16 above. Cho further discloses providing the first amplified analog audio signal to a line out output of the docking station (See Column 3 Lines 40-42).

14. Claim 21 recites limitations which are substantially equivalent to those of Claim 11 and is rejected under the same reasoning.

15. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, and Greaves as applied to Claim 16 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

16. In reference to Claims 18 and 19, Cho, Schinner, and Greaves disclose the limitations as applied to Claim 17 above. Cho, Schinner, and Greaves do not disclose amplifying the analog audio signal by a second audio amplifier thus providing a second amplified analog audio signal, as in Claim 18, and providing the second amplified analog audio signal to a subwoofer loudspeaker, as in Claim 19. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, and Greaves with the docking station subwoofer of Markow, resulting in the invention of Claims 18 and 19, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

17. In reference to Claims 20, Cho, Schinner, Greaves, and Markow disclose the limitations as applied to Claim 19 above. Cho further discloses that the docking station exhibits a substantially closed volume (See Figures 1 and 2). Markow also further discloses that the docking station exhibits a substantially closed volume (See Figure 1B Number 100).

Claim Objections

18. Claims 15-16 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

19. In reference to Claim 15, Claim 11, from which Claim 15 depends, recites the limitation of sending the digital audio signals across the docking interface, wherein the docking interface comprises a first multi-pin docking connector and a second multi-pin docking connector. Thus, the conversion from a digital audio signal to an analog audio signal must take place after the signal passes from the first connector to the second connector, as providing the conversion before would result in analog signal which is sent across the docking interface. Further, Claim 11 recites the limitation of converting a digital audio signal to an analog audio signal. Converting a digital audio signal to an

analog audio signal must necessarily include performing a digital to analog conversion. Thus, the limitations of Claim 15 are already present in Claim 11.

20. In reference to Claim 16, Claim 11, from which Claim 16 depends, recites the limitation of amplifying the analog audio signals. Amplifying an analog audio signal necessarily requires, at the minimum, a first audio amplifier, as amplification cannot take place without at least one amplifier. Likewise, when amplifying a signal, at least one amplified signal will necessarily be generated. Thus, the limitations of Claim 16 are already present in Claim 11.

Response to Arguments

21. Applicant's arguments, see Pages 5-7, filed 18 December 2007, with respect to the rejection(s) of claim(s) 1, 5-11, and 15-21 under 35 USC §103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection has been made as indicated above.

Conclusion

22. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Patent Number 6,626,686 to D'Souza et al., which discloses that multi-pin docking connectors are well known in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS J. CLEARY whose telephone number is (571)272-3624. The examiner can normally be reached on Monday-Thursday (7-3).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas J. Cleary/
Examiner, Art Unit 2111